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JC871 U.S. PTO

11-20-00  
A  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

File No. A-68747/JGW

Box PATENT APPLICATION FEE  
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Sir:

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I HEREBY CERTIFY THAT THIS PAPER OR FEE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO ADDRESSEE" SERVICE UNDER 37 CFR 1.10 ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO: BOX PATENT APPLICATION FEE, ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, DC 20231.

TYPED NAME Vince Diaz

SIGNED Vince M. Diaz

09/715558  
11/17/00  
JC871 U.S. PTO

Transmitted herewith for filing is the patent application of Inventor(s): William John Jones; Andrew G. Williams; Michael Bowring

For: USE OF INTERNET WEB TECHNOLOGY FOR WIRELESS INTERNET ACCESS

Enclosed are also:

Prior Art Statement

☒ 3 Sheets of drawing, Formal ☒, Informal ☐

☒ An Assignment of the invention to: IP Wireless, Inc.

Cost of recording to be charged to Deposit Account No. 06-1300 (Order No. A-68747/JGW)

Power of Attorney by Assignee & Exclusion of Inventor Under 37 CFR 1.32

☒ Combined Declaration and Power of Attorney for Patent Application

Declaration for Patent Application (unsigned)

Associate Power of Attorney

☒ Small Entity Status Declaration Under 37 CFR 1.9(f) and 1.27(c)

☒ Return postcard

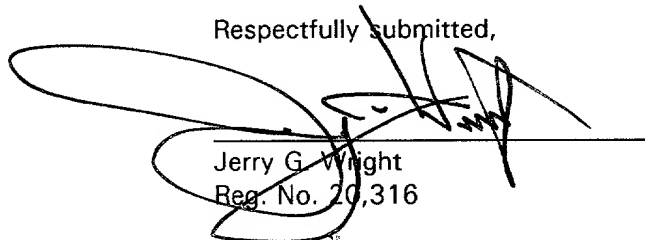
	(Col. 1) NO. FILED	(Col. 2) NO. EXTRA	SMALL ENTITY RATE FEE	OTHER THAN SMALL ENTITY RATE FEE
BASIC FEE			\$355	\$790
TOTAL CLAIMS	2 - 20 = 0	0	x 11 = \$	x 22 = \$0
INDEP CLAIMS	1 - 3 = 0		x 41 = \$	x 82 = \$0
MULTIPLE DEPENDENT CLAIM PRESENTED			+ 135 = \$	+ 270 = \$
If the difference in Col 1 is less than zero, enter "0" in Col. 2			TOTAL \$355	TOTAL \$

☒ Our Check No. 32983 in the amount of \$355.00 to cover the filing fee is enclosed.

☒ This is a continuation-in-part application under 35 U.S.C. 120/121 of U.S. Patent Application Serial No. 09/626,699, filed 7-27-00.

☒ The Commissioner is hereby authorized to charge any additional fees which may be required, including extension fees, or credit any overpayment to Deposit Account No. 06-1300 (Order No. A-68747/JGW.)  
Two copies of this sheet are enclosed.

Respectfully submitted,

  
Jerry G. Wright  
Reg. No. 20,316

FLEHR HOHBACH TEST ALBRITTON & HERBERT LLP  
Four Embarcadero Center, Suite 3400  
San Francisco, California 94111-4187  
Telephone: (415) 781-1989 Fax: (415) 398-3249

Applicant or Patentee: WILLIAM J. JONES, et al. Attorney's Docket No.: A-68747/JGW

Serial or Patent No.: \_\_\_\_\_ Filed or Issued: \_\_\_\_\_

For: USE OF INTERNET WEB TECHNOLOGY FOR WIRELESS INTERNET ACCESS

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN**

I hereby declare that I am

☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN: IPWIRELESS, INC. ADDRESS OF SMALL BUSINESS CONCERN: 1250 Bayhill Dr., #113, San Bruno, CA 94066

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention entitled, USE OF INTERNET WEB TECHNOLOGY FOR WIRELESS INTERNET ACCESS by inventor(s) WILLIAM J. JONES, ANDREW G. WILLIAMS and MICHAEL BOWRING described in

☒ the specification filed herewith

☐ application serial no. \_\_\_\_\_, filed \_\_\_\_\_

☐ patent no. \_\_\_\_\_, issued \_\_\_\_\_

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e). \*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING ROGER PHILLIP QUAYLE TITLE IN ORGANIZATION CTO

ADDRESS OF PERSON SIGNING 1250 Bayhill Drive, #113, San Bruno, CA 94066

SIGNATURE R.P. Quayle DATE 12 09 02

**USE OF INTERNET WEB TECHNOLOGY FOR  
WIRELESS INTERNET ACCESS**

This is a continuation-in-part of application Serial No. 09/626,699, filed July 27, 2000,  
entitled "USE OF INTERNET WEB TECHNOLOGY TO REGISTER WIRELESS  
5 ACCESS CUSTOMERS" which is a continuation- in- part Serial No. 09/432,824, filed  
November 2, 1999, entitled, 'CELLULAR WIRELESS INTERNET ACCESS SYSTEM  
USING SPREAD SPECTRUM AND INTERNET PROTOCOL (IP)."

**INTRODUCTION**

The present invention is directed to the use of Internet web technology for wireless  
10 customer Internet access AND specifically to allow authenticated Internet access for more  
than one personal computer.

**BACKGROUND OF THE INVENTION**

Both of the above applications describe a cellular wireless Internet access system which  
operates in the 2 gigahertz or other frequency bands to provide high data rates to fixed and  
15 portable wireless Internet devices. Such users connect to near-by base stations which in  
turn communicate to Integrated Network Controllers which are then connected to the  
Internet. Such wireless implementation relates to an access network of the UMTS

(Universal Mobile Telephone Service) and its subset UTRAN (Universal Terrestrial Radio Access Network) standards.

5 In order to gain service in a cellular wireless network of the types similar to the above, a sales representative at a retail location typically takes customer information, credit card number and credit history, etc. That information is used to create an account with a cellular service provider, with the customer information stored on the service provider's Home Location Register (HLR) or other customer database. A SIM (Subscriber Identity Module) card is then associated with the account and placed within the cellular terminal (typically, a mobile phone or wireless Internet device).

10 Both of the above techniques are cumbersome, requiring action on the part of the retailer or network service provider, and creating a time delay before a new customer can use the service.

15 Application Serial No. 09/626,699, allows the user to self-register to gain access to Internet services for the wireless system as above. It is, however, also desired to allow authenticated access to be provided for various user access units.

## **OBJECT AND SUMMARY OF INVENTION**

It is therefore an object of the present invention to provide an improved method for allowing customer access in a wireless Internet system.

20 In accordance with the above object there is provided a method of operating a cellular wireless Internet access system as part of an Internet Network where users have personal computers (PCs) and each user utilizes a portable user equipment (UE) typically with a directly attached antenna for communicating in a wireless manner on a cellular network with an integrated network controller, the UE being connected to the PC, the network

having a registration web server and an access operator authentication server. The method comprises the following steps:

- 5 A PC and associated UE are used to register with a registration web server on the Internet Network via an anonymous connection to the network including downloading subscriber identity information from the registration web server to the PC via the UE for storage in the PC. The subscriber identity information includes, at least, a unique user identification (user ID) and a permanent password. Such stored information constitutes a virtual subscriber identity module (VSIM). The access operator authentication server is updated with the user ID and password. The user may then be connected to an allowable Internet service provider (ISP) using the VSIM. Another PC may be used by transferring electronically the user ID and password to the other PC, said transfer including one of the following; temporary transfer to portable magnetic storage means, a local area network (LAN) or e-mail attachments, or similar electronic transfer.
- 10

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

- 15 FIG. 1 is a block diagram of an Internet system illustrating the present invention.

FIG. 2 is a schematic block diagram illustrating the present invention.

FIG. 3 is a flowchart showing the operation of the invention.

#### **DETAILED DESCRIPTION OF PREFERRED EMBODIMENT**

- Referring now to FIG. 1, there is illustrated a wireless access user 22 with user equipment (UE) connected by typical data connection to the personal computer (PC). The personal computer has a CD drive or similar media input device with a special compact disc containing software, including a wizard (that is the instructional system procedures for registration) which is placed in the CD drive. In addition, a second PC and UE 21 is
- 20

illustrated designated, new PC whose function in the Internet Network system shown in FIG. 1 will be described below.

Both the UE and CD of system 22 are acquired and purchased at some retail location or by mail. This is described more fully in the above '699 application involving registration.

5 PC 22 and its associated UE as described in the above application Serial No. 09/432,824, are a part of a UMTS/UTRAN system which by many wireless techniques (a specific novel one is described in the above application) communicates in a wireless manner via a UTRAN network as indicated by the symbol 23 to an Integrated Network Controller (INC) 24. Such controller may be connected by wireline or otherwise to an Internet

10 Protocol (IP) Network 31. As discussed in the above pending application, the Integrated Network Controller 24 includes an RNC or Radio Network Controller 26 which controls and allocates the radio network resources and provides reliable delivery of user traffic between a base station (described in the above pending application) and User Equipment (UE) and eventually the Integrated Network Controller (INC) 24. An SGSN (Serving

15 General Packet Radio Service Support Node) 27 provides session control and connection to the Access Operator Radius Authentication Server 34. Lastly, LAC 28 (layer 2 Tunneling Protocol Access Concentrator) provides the gateway functionality to the allowable Internet Service Providers (ISP) 40 and to the registration server 36. A Layer 2 Tunneling Protocol Network Server (LNS) 30 terminates communication tunnels from

20 the LAC through the IP network. The Access Operator Radius Authentication Server 34 supports the Home Location Register (HLR) functionality (described in the above pending application). The Access Operator Registration Server 36 provides the facilities for a new user to register.

The Integrated Network Controller 24 also illustrates that it incorporates a "RADIUS"

25 client 29. RADIUS is a system including the software that supports centralized access control for Internet access, which, as discussed above, is traditionally used where the access to the Internet is via the public switched telephone network. A description of

RADIUS is provided by an article RFC 2138 Remote Authentication Dial-in User Service (RADIUS) by C. Rigney, et al., April 1997.

5 In all cases of communication of a user equipment 21 or 22 through the Internet Protocol Network, illustrated as 31, authentication is performed by the user equipment (UE) signaling the customer's wireless access authentication information which is passed over the air to Integrated Network Controller 24 which queries a RADIUS server authentication server with the user ID (identification) and temporary password. The RADIUS server used is the Access Operator's RADIUS Authentication Server 34 which communicates with the Integrated Network Controller via the IP network using UDP/IP  
10 protocols with additional protocol layers for security.

In the case of a new user, a 'new user' ID and temporary password, preprogrammed in the CD software, is signaled to the Access Operator RADIUS Authentication Server 34 via the INC 24. The Access Operator RADIUS Authentication Server 34 recognizes the user as a 'new user' and communicates a set of protocol filters to the INC 24 that results in a  
15 PPP (Point-to-Point Protocol) session being set up between the User's PC and the Access Operator's Registration Server 36 via the Layer 2 Tunneling Protocol communication link 32 and bars the user from accessing any other service. The Access Operator's Registration Server 36 is connected to the subscriber account management and billing system 37.

20 Thus, the foregoing constitutes the anonymous session link where a general or non-authenticated user can still gain access to the wireless access operator's registration server for the purpose of new-user registration. The accompanying legend indicates the various paths. A UMTS access network operator 33 provides the special servers 34 and 36 along with the billing system 37.

25 The flow chart of FIG. 3 describes in somewhat truncated detail the registration procedure set out in greater detail in the above co-pending '699 application. After "START" in Step

1, the user purchases the user equipment UE which may or may not have a particular unique identification number (ID) and a CD with the appropriate software and wizard feature installed on it. This is connected to the PC. Next in Step 2, the user equipment is installed on the PC via the wizard instructions on the CD, along with a new user ID and temporary password which were contained on the CD. These are then sent to the UE. The UE sends this authentication information over the air to the RNC 26, which is passed onto the RADIUS Client 29 and the SGSN 27 which queries the RADIUS server 34 with a new user ID and temporary new user password. In effect, an anonymous connection using the temporary password is made on the Internet and as described in the above co-pending application, a permanent password is generated along with a user ID. As indicated in Step 3, this is stored in the PC memory of the unit 22. Thus, the permanent password and ID which have been electronically stored in the PC memory (which may be a randomly accessible memory or floppy disk or hard disk) form a virtual subscriber identity module or VSIM. At the same time (Step 6), the RADIUS server 34 is updated with the user's name and permanent password to provide subsequent access to allowable ISPs 40, as illustrated in FIG. 1. Thus, as described in the above co-pending application, access has been gained to the Internet Network on a special anonymous connection. Thus, as described in Step 4, connection may now be made to allowable Internet service providers (ISPs) using the VSIM user information via the Layer 2 Tunneling Network Server (LNS) 45 of the allowable ISPs 40. This route is shown in a dashed line designated End User Traffic 46.

With the VSIM, in accordance with the present invention, as shown in Step 6, a user may electronically transfer the subscriber identity information to a new or another PC, for example, indicated as 21 in FIG. This is illustrated in FIG. 2 where the original PC 22 with the VSIM subscriber identity module information indicated in dashed outline transfers the VSIM information via one of the following electronic techniques so designated: floppy disk, LAN (Local Area Network), e-mail attachment or other electronic means. Thus, the new PC 21 contains the VSIM information so designated in the dashed block as VSIM' and may access the Internet Network. Optionally, if as part of the VSIM or subscriber identity information, the unique identification or ID of the original associated



UE with PC 22 is part of the VSIM information, then as shown by the optional line 47 the original or old UE must be transferred to the new PC 21. This prevents use by more than one subscriber; in other words, it is further protection against fraud. However, this is not necessary if the user equipment ID is not a part of the required VSIM information.

5           Thus, with the foregoing the new PC 21 may now access the Internet Network. In summary the VSIM may manifest itself as the file on the hard disk of the personal computer being used for Internet Access, or as an alternative, be stored on a floppy disk or other removable media. In the case of the VSIM being stored on a floppy disk the end user may take that disk to a new or different computer connected to a new or different UE  
10          and gain wireless access to the Internet. Moreover, if the VSIM information is not encrypted, it can be retrieved and manually recorded by the user for transfer to another computer.

          Authentication and accounting is provided for against the identifying information of their VSIM. Other typical functions of a subscriber identity module (SIM) may be  
15          provided in addition to the unique ID, a customer password, and UE equipment identifier. This may include storage of an access network operator name, an Internet service provider name, encryption of all of the above data, provision of all of the above data on demand to associated subscriber equipment to an access network operator, or on demand to an ISP.

20          In conclusion, with the use of the VSIM as described above in a mobile or portable wireless system, such information is transportable in this electronic format from one computer to another. Moreover, it is stored in the user's PC or personal computer rather than the separate user equipment or subscriber unit (such as a cellular telephone).

**WHAT IS CLAIMED IS:**

1. A method of operating a cellular wireless Internet access system as part of an Internet Network where users have personal computers (PCs) and each user utilizes a portable user equipment (UE) typically with a directly attached antenna for communicating  
5 in a wireless manner on a cellular network with an integrated network controller, the UE being connected to the PC, said network having a registration web server and an access operator authentication server, the method comprising the following steps:

using a said PC and associated UE to register with said registration web server on said Internet Network via an anonymous connection to said network including  
10 downloading subscriber identity information from said registration web server to said PC via said UE for storage in said PC, said subscriber identity information including, at least, a unique user identification (user ID) and a permanent password, such stored information constituting a virtual subscriber identity module (VSIM);

updating said access operator authentication server with said user ID and  
15 password;

connecting to an allowable Internet service provider (ISP) using said VSIM; and  
transferring electronically said user ID and password to another PC, said transfer including one of the following; temporary transfer to portable magnetic storage means, a local area network (LAN) e-mail attachment, or similar electronic transfer.

- 20 2. A method as in claim 1 where said UE has a unique ID and is included as part of said subscriber identity information whereby the original associated UE is connected to said another PC to enable an Internet session.

Internet web technology is used to allow a wireless Internet customer to acquire a virtual subscriber identity module (VSIM) in an anonymous session connection and then transfer the VSIM to any other desired PC (personal computer).

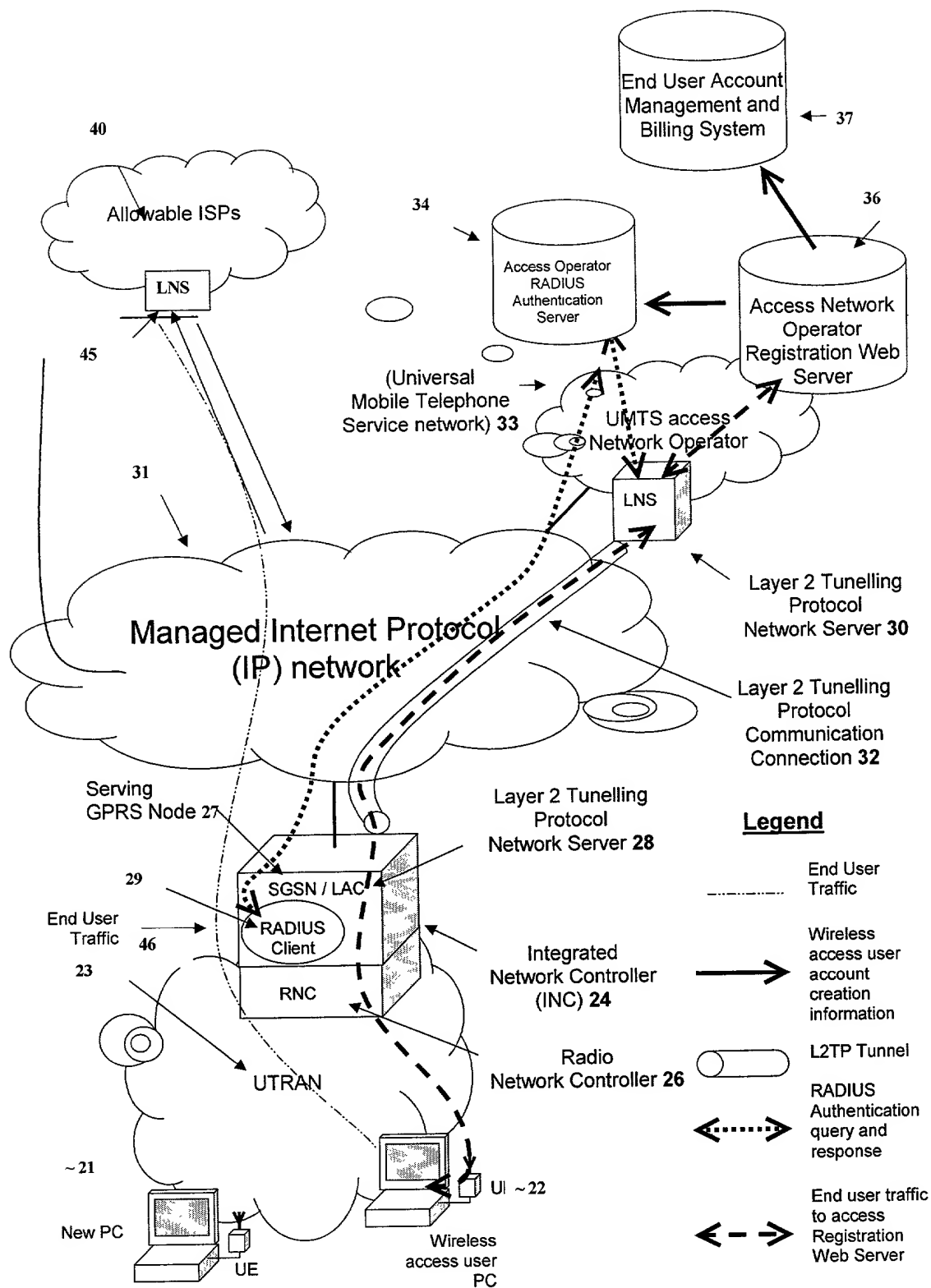


Figure - 1

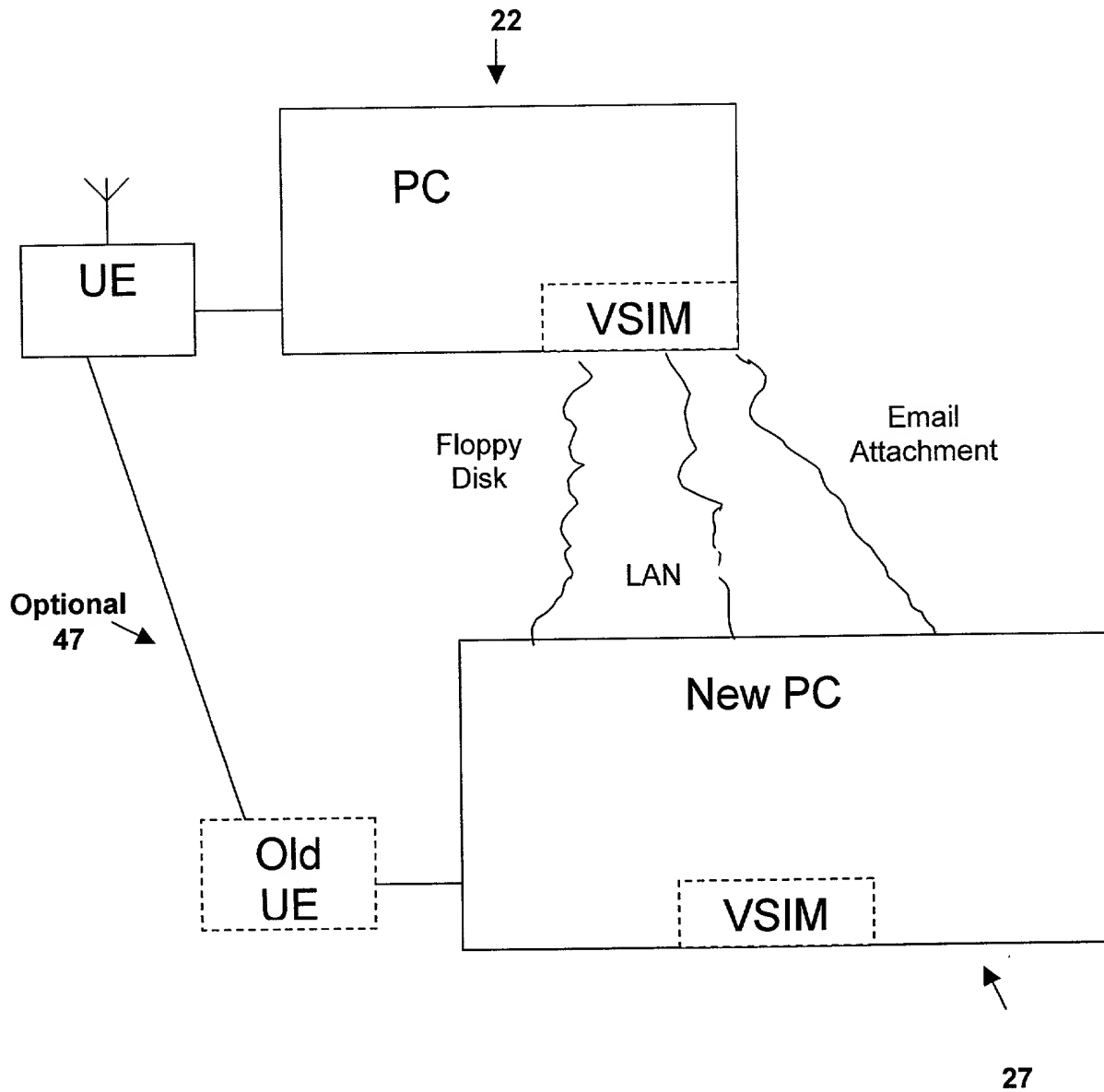
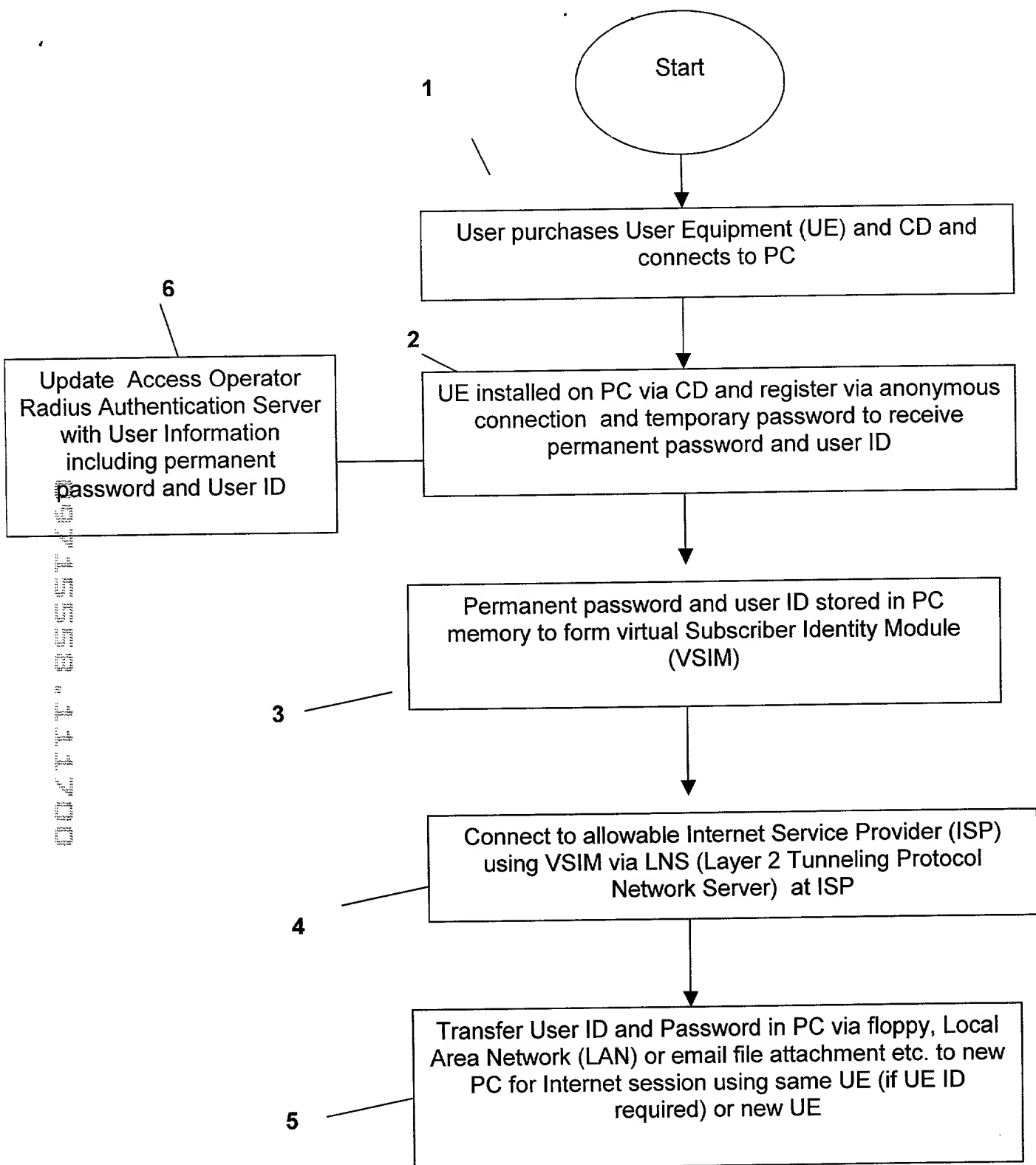


Figure - 2



**Figure - 3**

DECLARATION AND POWER OF ATTORNEY  
FOR PATENT APPLICATION

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled USE OF INTERNET WEB TECHNOLOGY FOR WIRELESS INTERNET ACCESS

the specification of which

(check ☒ is attached hereto.  
one)

☐ was filed on \_\_\_\_\_ as  
Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Patent Office all information known to me to be material to patentability as defined in 37 C.F.R. 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose to the Patent Office all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>09/626,699</u>	<u>July 27, 2000</u>	<u>Pending</u>
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)
<u>09/432,824</u>	<u>Nov. 2, 1999</u>	<u>Pending</u>
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Harold C. Hohbach, Reg. No. 17,757; Aldo J. Test, Reg. No. 18,048; Donald N. MacIntosh, Reg. No. 20,316; Edward S. Wright, Reg. No. 24,903; David J. Brezner, Reg. No. 24,774; Richard E. Backus, Reg. No. 22,701; James A. Sheridan, Reg. No. 25,435; Robert B. Chickering, Reg. No. 24,286; Richard F. Trecartin, Reg. No. 31,801; Steven F. Caserza, Reg. No. 29,780; Michael A. Kaufman, Reg. No. 32,988; Edward N. Bachand, Reg. No. 37,085; R. Michael Ananian, Reg. No. 35,050; Robin M. Silva, Reg. No. 38,304; David C. Ashby, Reg. No. 36,432; Maria S. Swiatek, Reg. No. 37,244; Dolly A. Vance, Reg. No. 39,054; Jerry G. Wright, Reg. No. 20,165; provided that if any one of said attorneys ceases being affiliated with the law firm of Flehr Hohbach Test Albritton & Herbert LLP as partner, employee or of counsel, such attorney's appointment as attorney and all powers derived therefrom shall terminate on the date such attorney ceases being so affiliated.

Direct all telephone calls to Jerry G. Wright at (415) 781-1989.

Address all correspondence to:

FLEHR HOHBACH TEST  
ALBRITTON & HERBERT LLP  
Suite 3400, Four Embarcadero Center  
San Francisco, California 94111

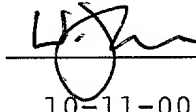
File No. A-68747/JGW

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or  
first inventor:

William J. Jones

Inventor's signature:



Date:

10-11-00

Residence:

Meadow Vale, Dauntsey, Chippenham, England SN15 4JH

Citizenship:

United Kingdom

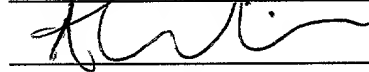
Post Office Address:

Meadow Vale, Dauntsey, Chippenham, England SN15 4JH

Full name of second joint  
inventor, if any:

Andrew G. Williams

Inventor's signature:



Date:

10-11-00

Residence:

79 Ashford Road, Swindon, England SN1 3NT

Citizenship:

United Kingdom

Post Office Address:

79 Ashford Road, Swindon, England SN1 3NT



Full name of third joint

inventor, if any:

Michael Bowring

Inventor's signature:

M. Bowring

Date:

10-11-00

Residence:

Church Cottage, Bussage Hill, Bussage, Stroud, GL6 8AY

Citizenship:

United Kingdom

Post Office Address:

Church Cottage, Bussage Hill, Bussage, Stroud, GL6 8AY

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